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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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7590

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EXAMINER

SCHECHTER, ANDREW M

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/607,014

Applicant(s)

HONG ET AL.

Examiner

Andrew Schechter

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 18 February 2003 have been fully considered but they are not persuasive.

The response has overcome the objections to Fig. 6, the specification, and the duplication of claim 3 with claim 7.

The amendment to the claims has overcome the rejections over *Shigeno* and *Ohta* in view of *Kondo*.

The applicant argues [p. 5] that *Kwok* does not properly qualify as a prior art reference because the U.S. filing date (November 29, 1999) is after the priority date (June 29, 1999) of the application. However, this is not persuasive for two reasons. First, the applicant has not submitted a certified translation of their priority document (Korean patent 1999-25214) and second, *Kwok's* filing date actually appears to be November 30, 1998 due to their claiming benefit under 35 U.S.C. 119(e) to a provisional application (60/110,358) with that filing date.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 5-7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kwok*, U.S. Patent No. 6,341,001 in view of *Hiroshi*, U.S. Patent No. 6,323,927 and further in view of *Harsch*, U.S. Patent No. 3,837,729.

Kwok discloses [see Fig. 13] a reflective type LCD where, when the twist angle is zero (anti-parallel rubbings, see *Hiroshi* below) and the angle between the polarizer and the rubbing is 45° (as it is for Fig. 13), the appropriate retardation of the liquid crystal layer takes on the value 0.14 μm (estimating the center of the contour) which corresponds to the $\lambda/4$ retardation when λ is above 570 nm, in the absence of a quarter wave plate, as recited by claim 1. *Kwok* discloses [see col. 1, lines 58-60] a liquid crystal layer (with liquid crystal molecules), a polarizer having a selected polarizing axis, and a reflective plate, but does not explicitly disclose the substrates, alignment layers, or electrode details [*Kwok* is silent on these matters].

Hiroshi does disclose the substrates, alignment layers, and electrode details recited by claim 1. In particular, *Hiroshi* discloses substrates [26 and 27] on either side of the liquid crystal, with counter electrode [49] and pixel electrode [48] on the first substrate to generate a fringe field to drive the liquid crystal molecules, and homogeneous alignment layers [59 and 62], which are rubbed in anti-parallel directions [col. 6, lines 25-31]. It would be obvious to one of ordinary skill in the art to use this fringe-field structure of *Hiroshi* with the device of *Kwok*, motivated by *Hiroshi's* teaching that such an "in-plane switching" or "IPS" mode has "a wide viewing angle and improved picture quality" and "can be fabricated at low cost by using a low voltage driving IC and by eliminating the need for a retardation film" [col. 1, line 63 – col. 2, line 2].

The final limitation of claim 1 is that the polarizer is on the outer surface of one substrate, and the reflective plate is on the outer surface of the other. In forming the combination of *Kwok* with *Hiroshi*, neither reference explicitly discloses whether or not the polarizer and reflective plate should be placed on the substrate's outer surfaces or not. However, this would have been obvious to do, as is shown by *Harsch* [see Fig. 1], motivated by this being a conventional LCD structure which is easy to manufacture and whose properties are well-understood. Claims 1, 2, 5, and 6 therefore unpatentable.

The examiner takes official notice that it is conventional in IPS devices to align the rubbing axes at an angle (between 10 and 85°) to the projection line of the fringe field (as shown in *Hiroshi*, Fig. 1c, for instance). It would be obvious to do so for one of ordinary skill, motivated among other reasons by the desire to use this conventional orientation which allows for good control of the liquid crystal molecules with this electrode arrangement. Claims 7, 9, and 10 are therefore unpatentable.

4. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kwok* in view of *Hiroshi* and *Harsch* as applied to claims 1 and 7 above, and further in view of *Mori et al*, U.S. Patent No. 6,184,957.


Claims 4 and 8 recite the polarizer axis coinciding with the rubbing axis rather than being at an angle of 45° to it. As disclosed by *Mori* [col. 8, lines 4-10] for IPS-type devices this is merely the difference between a normally-white and normally-black mode. These are art-recognized equivalents in the field, so it would be within the ability of one of ordinary skill in the art to use a normally-white mode with the axes coinciding. Claims 4 and 8 are therefore unpatentable.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-4711 for regular communications and (703) 746-4711 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Andrew Schechter
May 28, 2003


ROBERT H. KIM
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